



## Alaska Region News

National Park Service  
240 West 5th Ave  
Anchorage, AK 99501

907-644-3695 phone  
[nps.gov/akso/nature](http://nps.gov/akso/nature)

National Park Service  
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Contact: Brooke Carney, Science Communications Specialist  
[cbarney@nps.gov](mailto:cbarney@nps.gov)

### New Approach to Dall's Sheep Monitoring Better, Cheaper

FAIRBANKS, AK— Scientists with the National Park Service have developed new methods for monitoring Dall's sheep in Alaska that are providing better information while reducing costs by as much as 80% over existing survey approaches.

The methods and survey results are described in an article published in the current issue of the *Journal of Wildlife Management* (Schmidt and Rattenbury 2013) as well as in an article published in the same journal last year (Schmidt et al. 2012).

The majority of sheep habitat in seven national park units, including Denali, Gates of the Arctic, Noatak, Kobuk Valley, Cape Krusenstern, Wrangell-St. Elias, and Lake Clark, was surveyed in 2010-12 using the new technique, and the estimated population for the surveyed park units is currently 27,000-28,000 individuals—similar to the number present in the early 1980s when many of the park units were formed.

“Designing a monitoring program that provides accurate results in these large, remote areas is a challenge,” said Kumi Rattenbury, Ecologist with the National Park Service in Fairbanks. “We’re excited about this new approach because it means we can do a better job tracking the status of this iconic species over a huge area.”

The approach uses aerial distance sampling techniques to estimate overall population size as well as the composition (lambs, ewes, full curl rams, and < full-curl rams) of each population. It was first implemented by the National Park Service in Gates of the Arctic National Park and Preserve in 2009 where park-wide surveys were completed for the first time in nearly 30 years.

“This is one of the few ways to get a rigorous estimate of both abundance and composition from the same survey,” said Joshua Schmidt, National Park Service Biometrician and lead author on the two articles describing the new methods. “The higher quality data and lower costs will allow us to more consistently monitor populations and improve sheep management over time.”

Aerial distance sampling is combined with an analysis that incorporates prior knowledge and information from other surveys to improve estimates. Using prior knowledge allows the scientists to get accurate estimates from areas with small or dispersed sheep populations, such as in Denali National Park and Preserve, as well as in areas with larger populations, such as in Gates of the Arctic.

“We’re hopeful that this approach will help other agencies decrease costs and improve management of this species throughout Alaska,” Schmidt added.

“NPS strives for high quality research, which ensures that our decisions are based on sound science. Now more than ever, though, we need to keep a close eye on the budget. Thanks to talented staff, this new approach yields high quality data at a much reduced cost,” said Deb Cooper, Associate Director of Resources for the National Park

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Service's Alaska Region. "The data collected here can really improve our understanding of how sheep populations are doing, how they use the land, and shed some light on the challenges that may lay ahead."

For more information on the Dall's sheep monitoring program, including a video describing the monitoring program and access to the articles describing the new methods, visit <http://www.nps.gov/akso/nature/outside/sheep.cfm>.

*Dall's sheep are a focus of the National Park Service's long-term monitoring program because they are a sedentary (relatively non-migratory) resident of alpine areas, a potential indicator of environmental change and because of their importance as a harvested species. The Inventory and Monitoring Program of the National Park Service is tasked with monitoring the status and trends of select "vital signs" to track the overall health of ecosystems within national park units over time.*

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